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Varietal Description of Yellowhead Field Pea

Origin and breeding

Yellowhead, tested as MP 889, was developed at the Agriculture Canada Research Station, Morden, Manitoba, from a cross made in 1969 between plant introductions PI 200755 x PI 173058. These introductions originated from Guatemala and Turkey, respectively and were received from the Regional Plant Introduction Station, Ames, Iowa. These parents were selected on the basis of high yield and large seed size exhibited in evaluation nurseries grown at Morden Research Station in 1967 and 1968. The progenies from 8-10 single F_2 plants were carried to the F_6 generation in bulk when single plant selections were made in lines showing high yield and large seed size. The seed from single plant selections was increased, and a progeny line identified as MP 889 was selected. The breeder seed was bulked in 1981. Subsequently, due to extensive use of pea fibre in food products, a screening program was initiated at Morden to identify high fibre pea lines. MP 889 was identified as containing high fibre as measured by the seed coat content.

Varietal characteristics

Plant characteristics

Vines: medium length; medium thickness; 2-3 mm

Leaves: dark green; medium size; no serration; two pairs of leaflets; lower leaflets 3-4 cm long; upper leaflets 2 cm long; no waxy bloom

Stipule: green; slight serration at base; basal adhesion

Flowers: white

Pods: 5.5 cm long; smooth texture; pointed tip

Disease resistance: susceptible to Ascochyta blight (*Ascochyta pinodes*) and moderately susceptible to powdery mildew (*Erysiphe polygoni*)

Seed characteristics

Cotyledon: yellow

Seed: large and smooth

Cooking quality: lower than that of the checks

Protein content: lower than that of the checks

Performance

Yellowhead is a high fibre variety that is higher yielding than the checks Century and Trapper. It has a larger seed size, ranging between Century and Titan. It has higher seed coat content as compared to the check varieties, which would benefit the edible fibre food processing industry.

Maintenance of breeder seed

Agriculture Canada Research Station, Morden, Manitoba

Canadian distributor

Woodstone Foods Ltd.

Recommended by

Prairie Registration Recommending Committee

Copies of this and related publications may be obtained from the Print Media Branch, Alberta Agriculture,

Table 1: Agronomic and quality data for Yellowhead and check varieties, Field Pea Co-operative Tests, 1979 - 1981*.

Variety	Yield (kg/ha)	Maturity (days)	1000 Seed Wgt. (g)	Vine Length (cm)	Cooking Quality** Color	Gran.	Viscosity	Protein (%)
Yellowhead	2229	100	265	102	3.0	3.4	22.5	23.4
Century	1856	98	240	106	2.5	2.4	14.2	24.9
Tara	2162	99	211	101	2.7	2.5	17.5	24.2
Trapper	1780	98	148	97	2.9	2.4	18.4	25.3
No. of tests	(31)	(23)	(31)	(25)	(28)	(28)	(28)	(28)

*Locations: see Table 3

** Color and granulation were evaluated on a 1-5 scale where 1 = very good and 5 = poor. A scale of 1-24 was used for viscosity where 1 = high and 24 = low.

Table 2: Yield and agronomic data of Yellowhead and check varieties, Field Pea Co-operative Tests, 1979-1981 and 1988.

Variety	Yield (kg/ha) 1979	1980	1981	1988	(kg/ha)	Maturity (days)	1000 Seed wgt.(g)	Vine Length (cm)
Yellowhead	2240	2496	2010	2884	2407	98	252	95
Century	1778	1996	1807	2511	2023	95	233	94
Trapper	1764	1987	1629	2587	1991	96	145	93
No. of tests	(9)	(10)	(12)	(10)	(41)	(30)	(41)	(31)

Table 3. Disease reactions of Yellowhead and check varieties, Field Pea Co-operative Test, 1979-1981, and 1988.

	Ascochyta Blight*					Powdery Mildew*				
Variety:	1979	1980	1981	1988	Mean	1979	1980	1981	1988	Mean
Yellowhead	6.3	8.5	8.5	7.9	7.8	5.4	4.0	8.2	7.0	6.2
Century	7.4	9.0	8.7	8.7	8.4	7.2	3.5	9.0	6.7	6.7
Trapper	7.4	8.3	8.7	7.8	8.0	5.9	5.5	8.7	5.7	6.4
No. of tests (1)		(1)	(1)	(1)	(4)	(1)	(1)	(1)	(1)	(4)

*Disease ratings were based on 1-9 FAO scale where 1 = no infection, and 9 = severe infection.

Table 4. Agronomic performance of Yellowhead and check varieties, Field Pea Co-operative Test, 1988.

Variety	Yield (kg/ha)	Maturity (days)	1000 Seed wgt. (g)	Vine Length (cm)	Asochyta Blight (1-9)	Powdery Mildew (1-9)
Yellowhead	2884	96	239	88	7.9	7.0
Century	2511	93	227	82	8.7	6.7
Express	3053	91	220	50	7.6	8.7
Fortune	2405	99	172	65	6.5	9.0
Tipu	2541	94	212	84	7.9	7.2
Titan	2614	96	247	90	7.9	6.5
Trapper	2587	94	143	89	7.8	5.7
Victoria	2869	90	177	70	7.3	7.8

Table 5. Yield (kg/ha) of Yellowhead and check varieties from individual stations*, Field Pea Co-operative Test, 1979-1981 and 1988.

Variety	Morden	Portage La Prairie	Brandon	Regina	Melfort	Sask.	Indian Head	Lacombe	Brooks	Bow Island	Olds	Camrose	MacDonald College	Normandin
Yellowhead	1835	1857	2063	1401	2208	1578	2252	2813	3187	3204	2041	2227	1252	2344
Century	1493	1870	1716	1274	1741	1157	1583	2425	2532	2636	1680	2218	1175	1984
Trapper	1674	1745	1776	1291	1781	1267	1836	2009	2530	2105	1335	1829	1233	1721
No. of tests	(4)	(4)	(2)	(3)	(3)	(3)	(3)	(2)	(3)	(2)	(1)	(1)	(1)	(2)

Table 6. Yield (kg/ha) of Yellowhead and check varieties from individual station, 1988.

Variety	Morden	Portage La Prairie	Carrot River	Outlook	Brooks	Vermilion	Fort Vermilion	Stettler	Calmar	New Liskeard	Mean
Yellowhead	1229	1431	1707	3183	2996	4021	2867	3304	5086	3016	2884
Century	938	1539	1399	2830	2510	3625	2426	3233	3841	2772	2511
Express	1337	1262	1717	3203	3095	5280	2642	3479	5706	2813	3053
Fortune	1037	492	1760	3212	1936	3737	2855	3560	3637	1832	2405
Tipu	958	1138	1268	2611	2655	3681	2453	3147	4407	3099	2541
Titan	1052	1446	1523	2830	2864	3827	2259	3257	4224	2856	2614
Trapper	1163	1305	1528	2951	2535	3588	2802	3389	3888	2718	2587
Victoria	1255	1563	1602	2988	2949	4228	2545	3490	5118	2950	2869

Table 7: Seed coat analysis of Yellowhead and check varieties in the 1988 Co-operative Tests.

Variety	Morden (%)	Portage La Prairie (%)	Carrot River (%)	Calmar (%)	Vermilion (%)	Fort Vermilion (%)	Mean (%)	Yield (kg/ha)	Seed Coat Yield (kg/ha)
Yellowhead	9.5	10.3	9.8	10.7	9.1	9.0	9.7	2723	264
Century	7.7	8.2	8.7	8.3	7.8	8.1	8.1	2294	185
Express	7.9	9.1	8.4	8.2	7.6	7.4	8.1	2990	242
Fortune	8.7	9.5	8.1	9.5	7.9	8.0	8.6	2253	193
Tipu	7.7	9.0	9.3	8.9	8.2	8.3	8.6	2317	199
Titan	7.4	8.4	9.0	8.9	7.6	8.1	8.2	2388	195
Trapper	7.9	8.7	8.7	8.8	7.7	8.5	8.4	2379	199
Victoria	7.5	9.4	8.2	8.4	7.6	7.8	8.2	2718	222
Mean	8.0	9.0	8.7	8.9	7.9	8.1	8.4	–	–